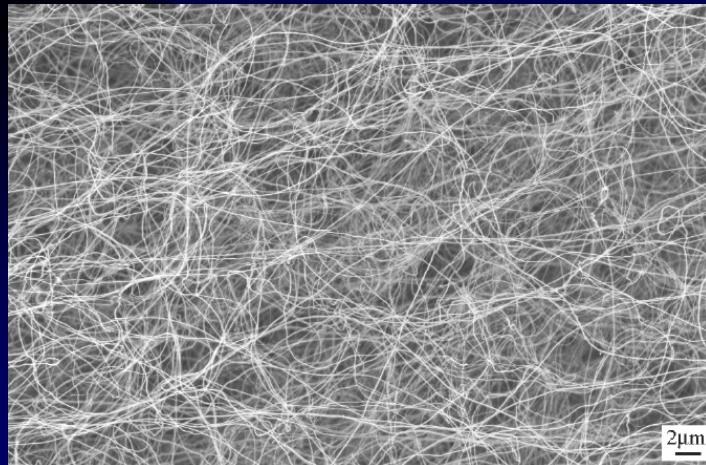
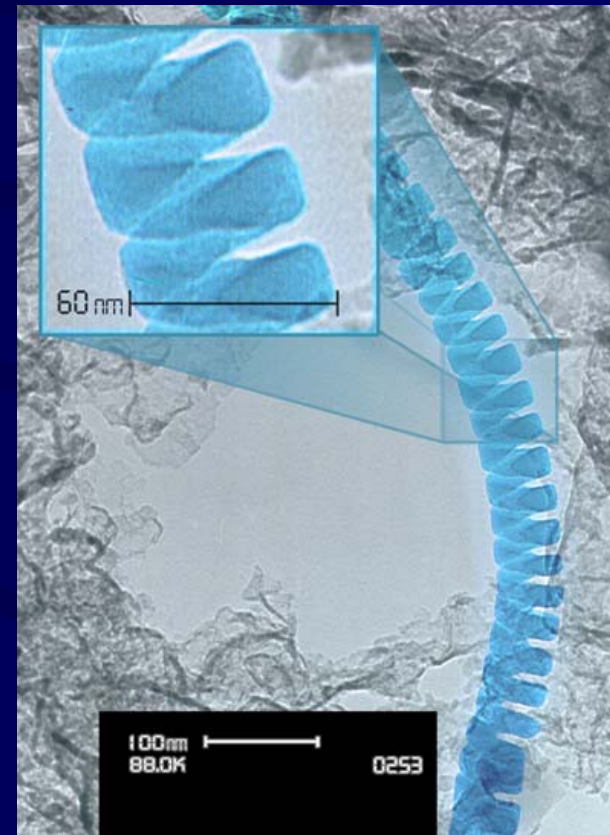
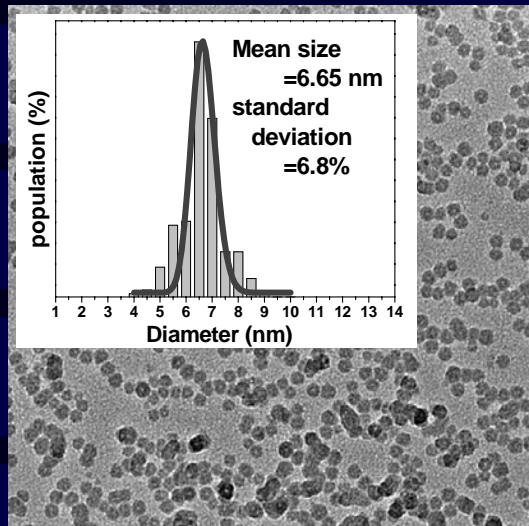


Bio-nanotechnology at the University of Idaho

James J. Nagler
Department of Biological Sciences

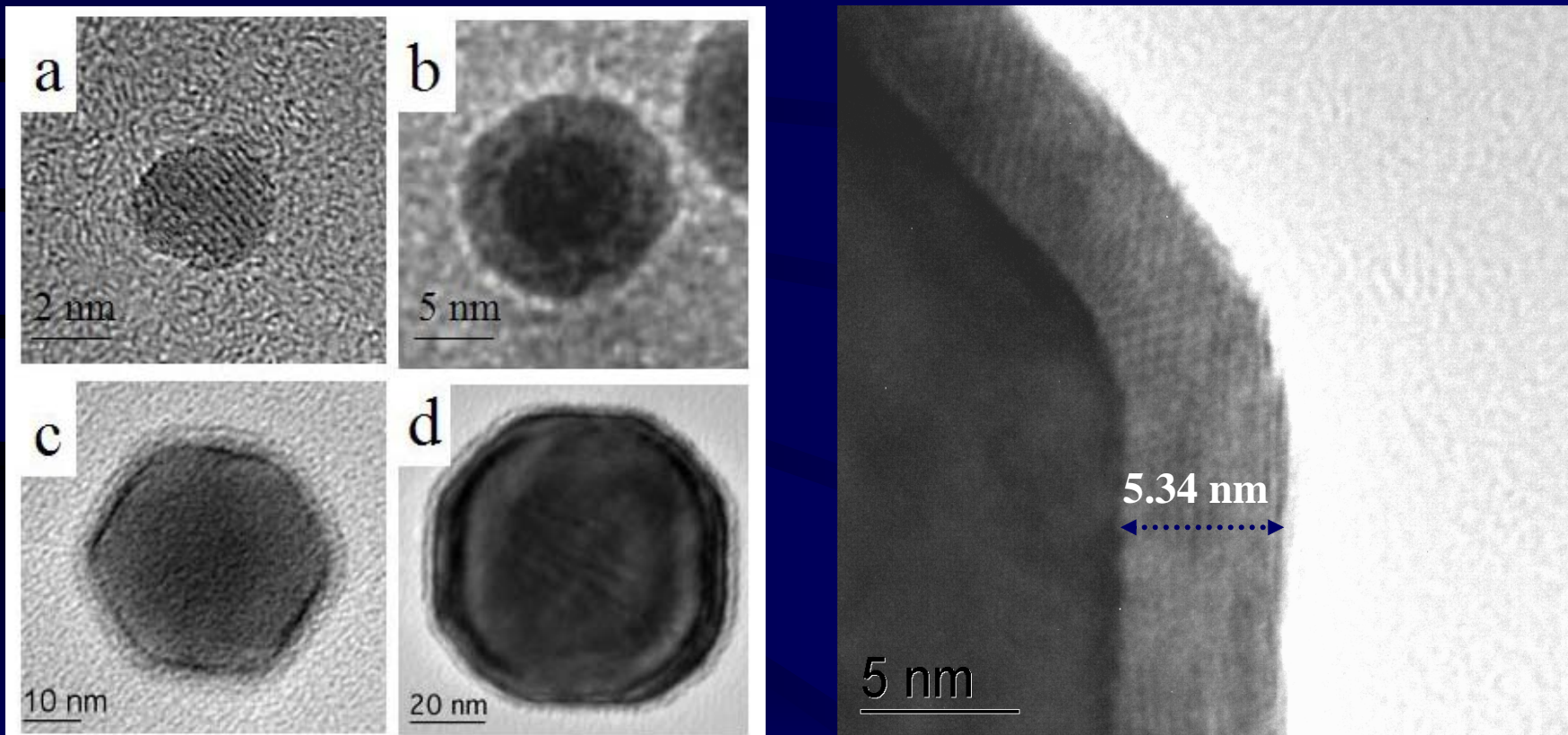


Bio-nano is based on nanoscale particles, wires, and springs



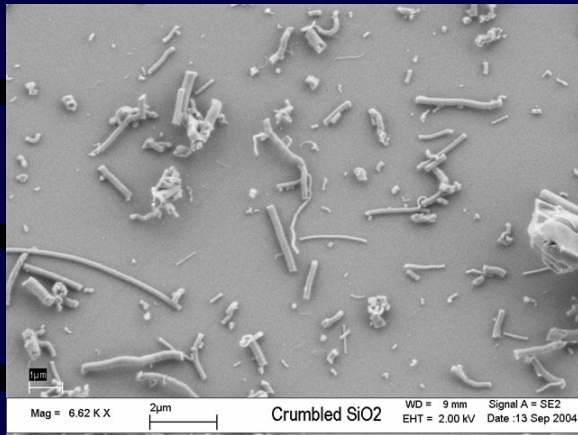
← 10,000 times smaller than a human hair

Application 1: Bioseparation and cell biolabeling using nanomagnets



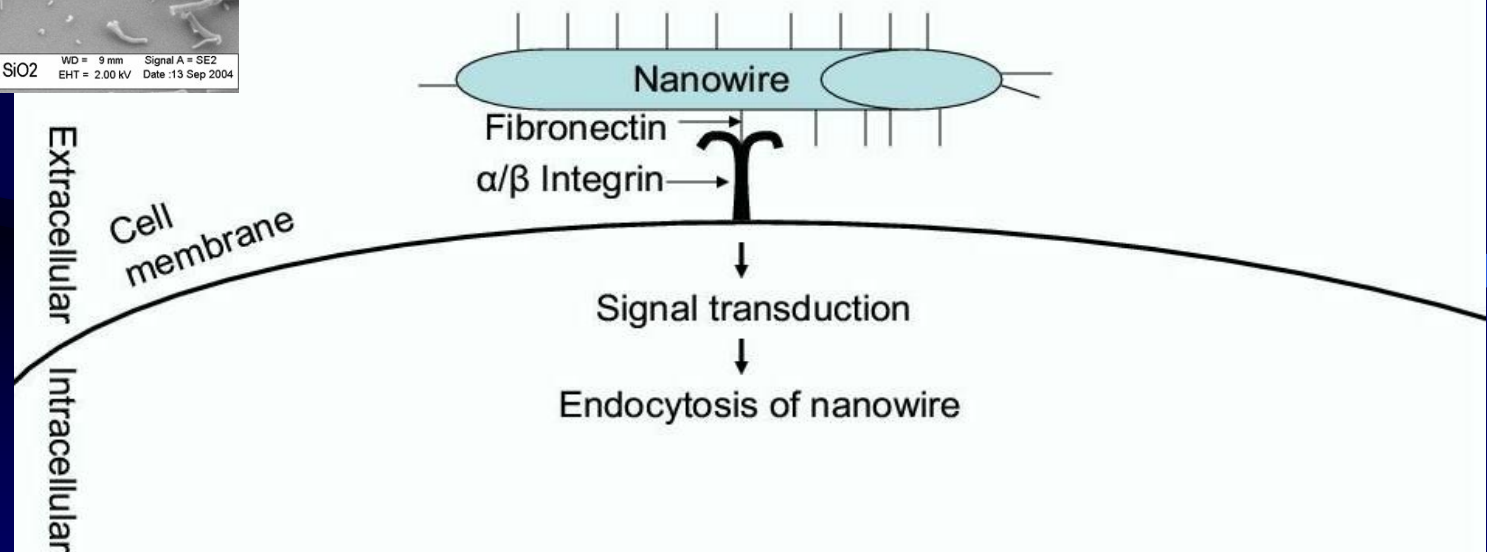
- Fe/Fe oxide nanocluster

Application 2: Biodelivery using protein-coated nanowires

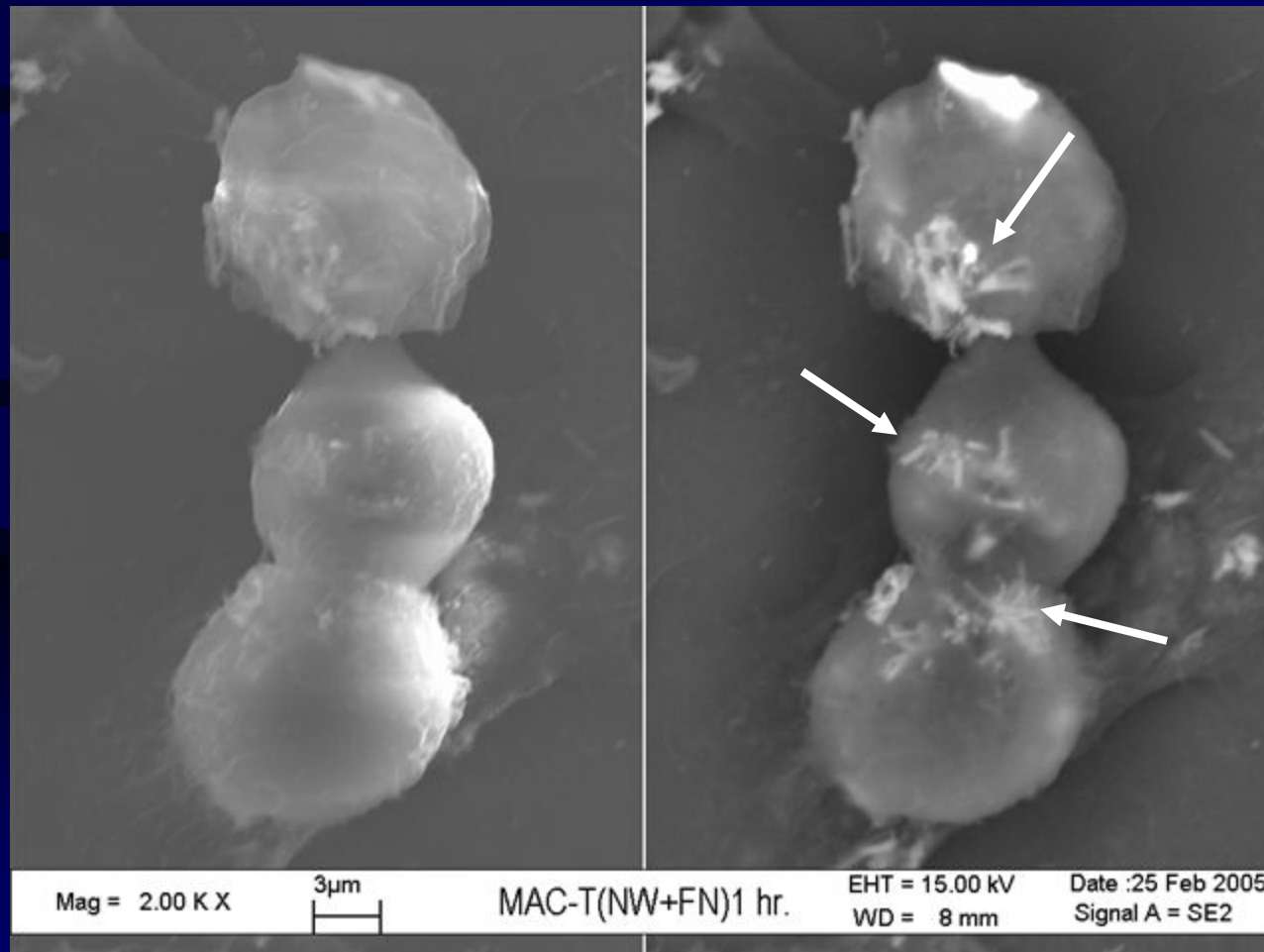


- silicon carbide

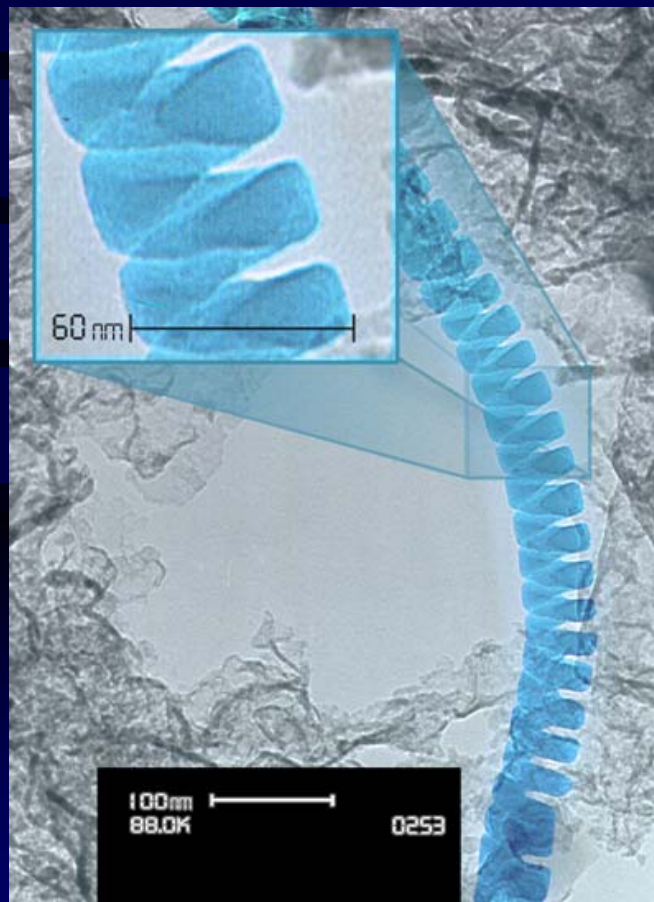
Schematic diagram depicting methodology for delivering molecular cargo into cells using fibronectin-coated nanowire



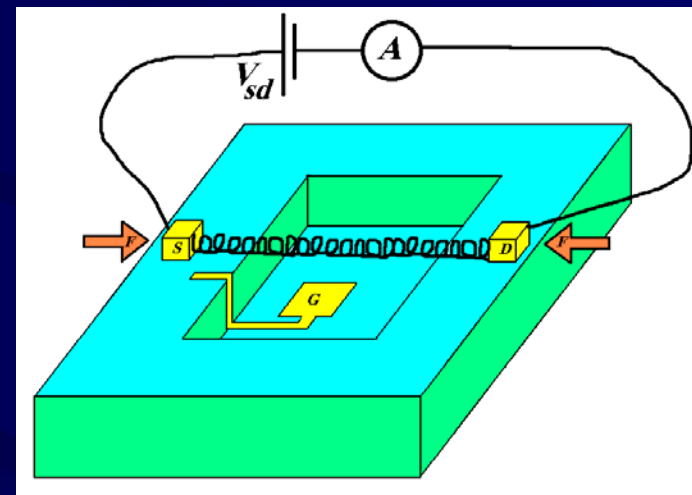
Cell uptake of fibronectin-coated nanowires



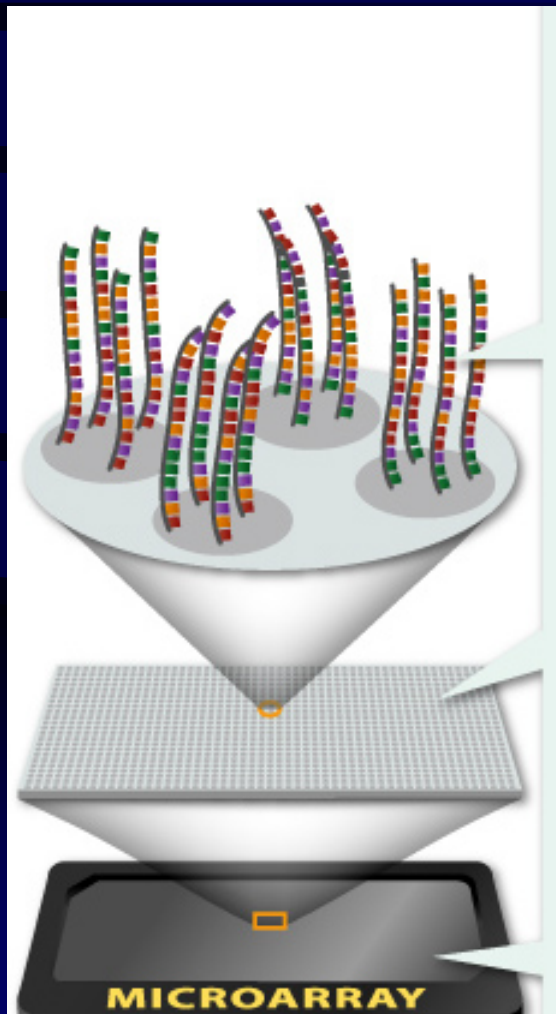
Application 3: Gene detection and quantification using nanosprings



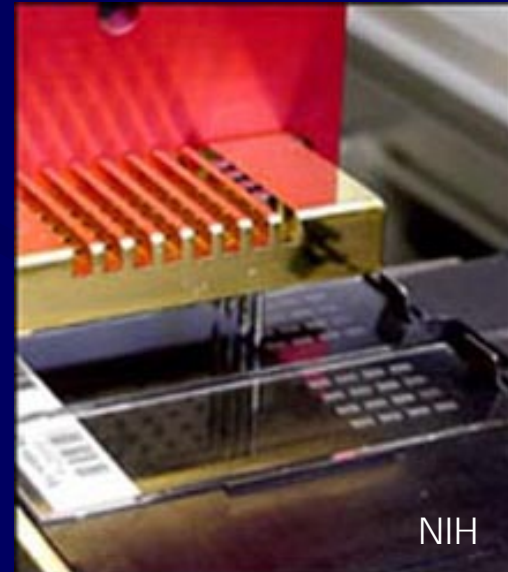
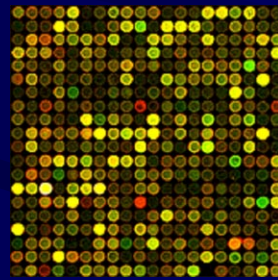
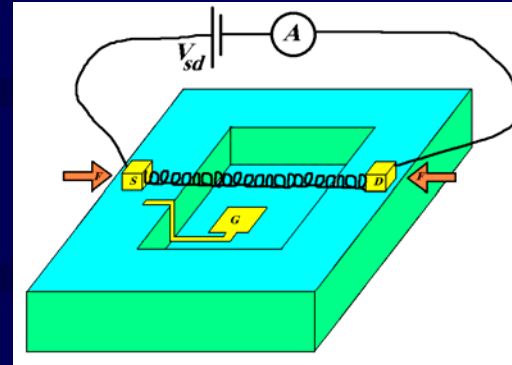
- boron carbide



Microarray- animal on a chip



GSLC, Univ. Utah



Contributors/Collaborators

Drs. David McIlroy, Chris Berven, and You Qiang, Department of Physics, UI

Dr. Pamela Shapiro, Department of Chemistry, UI

Dr. Greg Bohach, Department of Microbiology, Molecular Biology, and Biochemistry, UI

Dr. Christopher Daniels, College of Pharmacy, ISU

Dr. Alex Punnoose, Department of Physics, BSU

Conclusions

- several exciting ongoing research projects
- numerous applications for bioscience
- critical mass of expertise available in Idaho